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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,812	09/21/2004	Takakiyo Kanazawa	SON-2651	5948

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EXAMINER
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GUPTA, PARUL H

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/508,812	<b>Applicant(s)</b> KANAZAWA ET AL.	
	<b>Examiner</b> Parul Gupta	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-15,18-28 and 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-15,18-28 and 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-2, 4-15, 18-28, and 43 are pending for examination as interpreted by the examiner. The amendment and arguments filed on 12/22/06 were considered.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-7, 15, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. in view of Misawa et al., US Patent 4,876,680.

Regarding claim 1, Nakao et al. teaches in figure 1 an optical pickup apparatus comprising: an optical pickup including an optical pickup body having a substrate (2), a light source attached to said substrate (1), a light receiving element (3) attached to said substrate and an optical member (4-7) attached to said substrate, and an objective lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body, wherein said optical pickup is configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated along a thicknesswise direction of the optical disk by an air flow formed between said slider and the recording face (between elements 17A and 13 of figure 10B), said optical member is configured such that a light beam emitted from said light source is illuminated on the recording face (element 13 of figure 13) through said objective lens (element 12 of

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figure 13) and the reflected light beam reflected by the recording face is received by said light receiving element (3) through said objective lens, and said optical member (4-7) is provided in a state wherein said optical member closely contacts with said light source (1), objective lens and light receiving element without a gap left therebetween (as it is part of the same substrate, there is no gap left therebetween), wherein, said optical member (4-7) is in the form of a rectangular plate and is attached at one of two mutually opposing faces thereof to said substrate (2) while said objective lens (9) is attached to the other of the two mutually opposing faces of said optical member, and said light source (1) is attached to a face of said optical member; and wherein, said light source (1) is attached to said substrate (2), and a surface of said light source which is exposed to the outside while said light source is attached to said optical member is covered with anticorrosion means for blocking the surface from the external air (shown in figures 4A to 6B and explained further in column 6, lines 24-49). Although there is no mention in Nakao et al. of the plate being rectangular, this is merely a matter of design choice. Nakao does not but Misawa et al. teaches in figure 9 that the light source (11) is perpendicular to the one face and the other face of the optical member (13). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the light source being perpendicular to the optical member as taught by Misawa et al. into the system of Nakao et al. The motivation would be to make the vertical size of the optical pickup shorter (column 8, lines 24-26 of Misawa et al.).

Regarding claim 15, Nakao et al. teaches in figure 1 an optical disk apparatus comprising: driving means for holding and driving an optical disk to rotate (function

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performed by element 37 of figure 16); and an optical pickup apparatus (element 17(100,101) of figure 16) for illuminating light on the optical disk driven to rotate by said driving section and detecting reflected light from the optical disk; said optical pickup apparatus including: an optical pickup having an optical pickup body having a substrate (2), a light source (1) attached to said substrate, a light receiving element (3) attached to said substrate and an optical member (4-7) attached to said substrate, and an objective lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body, wherein said optical pickup being configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated along a thicknesswise direction of the optical disk by an air flow formed between said slider and the recording face (between elements 17A and 13 of figure 10B), said optical member being configured such that a light beam emitted from said light source is illuminated on the recording face (element 13 of figure 13) through said objective lens (element 26 of figure 13) and the reflected light beam reflected by the recording face is received by said light receiving element (3) through said objective lens, and said optical member (4-7) is provided in a state wherein said optical member closely contacts with said light source (1), objective lens and light receiving element without a gap left therebetween (as it is part of the same substrate, there is no gap left therebetween), wherein, said optical member (4-7) is in the form of a rectangular plate and is attached at one of two mutually opposing faces thereof to said substrate (2) while said objective lens (9) is attached to the other of the two mutually

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opposing faces of said optical member, and said light source (1) is attached to a face of said optical member perpendicular to the one face and the other face; and wherein, said light source (1) is attached to said substrate (2), and a surface of said light source which is exposed to the outside while said light source is attached to said optical member is covered with anticorrosion means for blocking the surface from the external air (shown in figures 4A to 6B and explained further in column 6, lines 24-49). Although there is no mention in Nakao et al. of the plate being rectangular, this is merely a matter of design choice. Nakao does not but Misawa et al. teaches in figure 9 that the light source (11) is perpendicular to the one face and the other face of the optical member (13). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the light source being perpendicular to the optical member as taught by Misawa et al. into the system of Nakao et al. The motivation would be to make the vertical size of the optical pickup shorter (column 8, lines 24-26 of Misawa et al.).

Regarding claim 43, Nakao et al. teaches in figure 1 an optical pickup apparatus comprising: an optical pickup including an optical pickup body having a substrate (2), a light source attached to said substrate (1), a light receiving element (3) attached to said substrate, an optical member (4-7) attached to said substrate, and an objective lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body, said optical pickup being configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated along a thicknesswise direction of the optical disk by an air flow formed between said slider and

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the recording face (between elements 17A and 13 of figure 10B), said optical member being configured such that a light beam emitted from said light source is illuminated on the recording face (element 13 of figure 13) through said objective lens (element 26 of figure 13) and the reflected light beam reflected by the recording face is received by said light receiving element (3) through said objective lens, said optical member (4-7) comprising a polarizing beam splitter (element 5, shown in more detail in figure 2), said polarizing beam splitter comprising a first portion having a first refractive index (one of the four grating areas as explained in column 5, lines 40-63), a second portion having a second refractive index different from said first refractive index (another one of the four grating areas as explained in column 5, lines 40-63), and a polarizing face formed at the mating faces of the first and second portions (14), said polarizing beam splitter having a first rectangular face in close contact (thorough 4) with a face of the substrate (2) and the light receiving element (element 3, shown in more detail in figure 2) without a gap left therebetween (as it is part of the same substrate, there is no gap left therebetween), a second rectangular face opposing said first face in a spaced relationship to said first face, and four side faces perpendicular to said first and second faces (shown in figures 1 and 2), said light source (1) being arranged to emit a light beam into one of said faces of said polarizing beam splitter toward said polarizing face, said light source (1) being in close contact with said one face of said polarizing beam splitter without a gap left therebetween (as it is part of the same substrate, there is no gap left therebetween), and said optical member (4-7) being in close contact with said objective lens (element 26 of figure 13) without a gap left therebetween (as it is part of the same substrate,

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there is no gap left therebetween). Nakao does not but Misawa et al. teaches in figure 9 that the light source (11) is perpendicular to the one face and the other face of the optical member (13), making it contact a side face. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the light source being perpendicular to the optical member as taught by Misawa et al. into the system of Nakao et al. The motivation would be to make the vertical size of the optical pickup shorter (column 8, lines 24-26 of Misawa et al.).

Regarding claims 4 and 18, Nakao et al. teaches in figure 1 the optical pickup apparatus, wherein said anticorrosion means is made of a synthetic resin material (shown in figures 4A to 6B and explained further in column 6, lines 24-49). The given section explains the anticorrosion means, which serve the same purpose as the synthetic resin material.

Regarding claims 5 and 19, Nakao et al. teaches in figure 1 the optical pickup apparatus wherein, said light source (1) includes a light emitting element for emitting the light beam, a photo-detector (3) for monitoring the light beam emitted from said light emitting element, and a mount member attached to said substrate (2) and having said light emitting element and said photo-detector mounted thereon, that surfaces of said light emitting element, photo-detector and mount member which are exposed to the outside while said mount member is attached at a lower face (area between elements 2 and 1 or 3) thereof to said substrate and the light emitting face of said light emitting element and a front face of said mount member are attached to said optical member are



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covered with said anticorrosion means, and that said anticorrosion means is formed from a transparent synthetic resin material through which the light beam emitted from said light emitting element can pass (shown in figures 4A to 6B and explained further in column 6, lines 24-49). Although the photodectors are not specified as being for monitoring the light beam, using them for that purpose would be obvious to one of ordinary skill in the art.

Regarding claims 6 and 20, Nakao et al. teaches the optical pickup apparatus wherein, connection terminals for inputting a driving signal are provided on said light emitting element while electric terminals for relaying the driving signal are provided on said substrate, and said connection terminals and said electric terminals are covered with said anticorrosion means. Column 11, lines 4-13 give the necessary connection terminals. Although it is not specified how they are covered with anticorrosion means, the fact that the details of protecting the light source are given makes it obvious to one of ordinary skill in the art at the time of the invention to protect all elements exposed to air in the same way. .

Regarding claims 7 and 21, Nakao et al. teaches in figure 1 the optical pickup apparatus wherein, said objective lens is provided integrally with an objective lens plate (9), and said objective lens plate is attached at one face thereof to said optical pickup body (top) while said slider is attached to the other face of said objective lens plate (via element 17A of figure 10B).

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3. Claims 8-14 and 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. in view of Misawa et al., further in view of Crane et al., US Patent 6,078,473.

Regarding claims 8 and 22, Nakao et al. in view of Misawa et al. teaches the limitations of claims 1 and 15. Nakao et al. in view of Misawa et al. does not but Crane et al. teaches the optical pickup apparatus wherein, said optical pickup apparatus comprises a resiliently deformable support plate (22 of figure 3) in the form of a small-width plate having said optical pickup attached to an end in a longitudinal direction thereof, and said support plate has a thermal conductivity and a heat radiating property (column 2, lines 6-10 explain that the flexure is conductive). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given support plate as taught by Crane et al. into the system of Nakao et al. in view of Misawa et al. The motivation would be to ensure that force is carried equally by all elements in the apparatus and to ensure that the support plate is conductive (column 6, lines 1-33 of Crane et al.).

Regarding claims 9 and 23, Crane et al. teaches the optical pickup apparatus wherein, said support plate has a heat radiating fin (elements 174 and 176 of figure 13) provided thereon in a projecting manner in a direction in which said radiating fin approaches the recording face.

Regarding claims 10 and 24, Crane et al. teaches the optical pickup apparatus wherein, said support plate is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claims 11 and 25, Crane et al. teaches the optical pickup apparatus wherein, said optical pickup apparatus further comprises a resiliently deformable load beam (18 of figure 3) in the form of a small-width plate having said support plate attached to one end in a longitudinal direction thereof, and said load beam transmits and radiates heat from said light source rapidly (column 2, lines 6-10 explain that the flexure is conductive). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given load beam as taught by Crane et al. into the system of Nakao et al. in view of Misawa et al. The motivation would be to ensure that force is carried equally by all elements in the apparatus and to ensure that the load beam is conductive (column 6, lines 1-33 of Crane et al.).

Regarding claims 12 and 26, Crane et al. teaches the optical pickup apparatus wherein, said load beam has a heat radiating fin (elements 174 and 176 of figure 13) provided in a projecting manner in a direction in which said load beam approaches the recording face.

Regarding claims 13 and 27, Crane et al. teaches the optical pickup apparatus wherein, said load beam is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claims 14 and 28, Crane et al. teaches in figure 7 the optical pickup apparatus wherein, a gap is formed between said support plate (22) and said load beam (18) and filled with grease for transmission of heat (column 5, lines 32-45).

***Response to Arguments***

4. Applicant's arguments with respect to all claims have been considered but are not persuasive.

Applicant contends that Nakao et al. fails to disclose or teach that the light source is attached to a face of the optical member, which is perpendicular to the two faces of the optical member attached to the substrate and the objective lens. However, the light source is attached to the face of the optical member through the substrate. The issue of the light being attached perpendicularly to the faces of the optical member is already said to be taught by Misawa et al.

Applicant contends that the light source of Nakao et al. is not attached to both the optical member and the substrate. However, the light source is attached to the optical member via the substrate, making it attached to both.

Applicant contends that the light source of Nakao et al. is not covered with anticorrosion means outside of the process for making the semiconductor light source. However, regardless of when the anticorrosion means are applied to the light source, they still exist for the same purpose.

Applicant contends that the objective lens of Nakao et al. is not attached to a face of the optical member in close contact therewith and without a gap left therebetween. However, the actuator moves, making it possible to bring the objective lens into close contact without a gap left therebetween.

Applicant contends that Misawa et al. does not teach the given optical pick-up. However, Misawa et al. is merely relied upon for the perpendicular attachment of the

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light source to the optical member, which is taught in the given section in the rejection of claim 1. The given lack of a gap left therebetween is already explained earlier to have been taught by Nakao et al.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 9:30 AM to 7 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG  
3/12/07

  
TAN DINH  
PRIMARY EXAMINER

3/19/07